STUDIES IN THE EUPATORIEAE (ASTERACEAE). CCXXI.

ADDITIONAL SPECIES FROM TROPICAL AMERICA.

R. M. King and H. Robinson
Department of Botany
National Museum of Natural History
Smithsonian Institution, Washington, D.C. 20560.

Specimens sent on loan and materials sent for identification continue to furnish examples of species that are undescribed or in need of transfer to other genera. The present paper offers descriptions of two species in each of Ageratina, Critonia, and Neomirandea, and a single species of Mikania. Also necessary is the following new combination in Ophryosporus.

Ophryosporus heptanthus (Sch.Bip. ex Wedd.) R. M. King & H. Robinson, comb. nov. Basionym, Eupatorium origanoides Meyen & Walp., Nov. Act. Acad. Caes.-Leopold 19, suppl. 1: 257. 1843, not E. origanoides Humboldt, Bonpland & Kunth, 1818 (now Cronquistianthus). Syn. Ophryosporus origanoides Hieron., Bot. Jahrb. 22: 707. 1897.

When B. L. Robinson (1920: 27) placed Eupatorium heptanthum Sch. Bip. ex Wedd. in synonymy, he overlooked the fact that the common Meyen and Walpers name was a later homonym. The latter name was validated at the time of its transfer into Ophryosporus in 1897, but that was long after the date of validation of the synonym.

Ageratina contigua R. M. King & H. Robinson, sp. nov.
Plantae fruticosae 1.0-1.2 m altae laxe ramosae. Caules fulvescentes teretes vel subhexagonales glabri. Folia opposita sessilia; laminae anguste oblongo-lanceolatae 2.7-11.1 cm longae et 0.6-6.6 cm latae base truncato-rotundatae subamplexicaules margine supra basem crenato-serrulatae apice anguste acutae supra glabrae subtus in nervulis sparse appresse pilosulae, nervis secundariis inferioribus pinnatus brevioribus congestioribus patentioribus supra mediam ascendentioribus et remotioribus, nervulis translucentiter pellucido-reticulatis. Inflorescentiae in ramis terminales in axillis inferioribus foliiferae corymboso-paniculatae, ramis et ramulis tenuibus

puberulis, ramulis ultimis 5.5-9.0 mm longis. Capitula ca. 8 mm alta et madida 2-3 mm lata; squamae involucri pallide virides ca. 12 eximbricatae plerumque ca. 5 mm longae et 0.75 mm latae exteriores breviores 3-4 mm longae omnino anguste acutae extus supra basem glabrae distincte bicostatae. Flores ca. 6 in capitulo; corollae albae ca. 5 mm longae, tubis tenuibus ca. 2 mm longis glabris, faucibus anguste campanulatis ca. 2.5 mm longis glabris, lobis triangularibus ca. 0.9 mm longis et 0.6 mm latis extus pauce puberulis; filamenta in parte superiore ca. 0.35 mm longa; thecae ca. 1.2 mm longae; appendices antherarum ca. 0.25 mm longae et 0.15 mm latae; rami stylrum interne glanduliferi; achaenia 1.5-1.8 mm longa aliquantum fusiformia superne et in costis breviter setulifera; carpopodia breviter cylindrica ca. 0.12 mm lata et 0.23 mm lata, cellulis elongatis; setae pappi ca. 20 facile deciduae plerumque 4.0-4.5 mm longae. Grana pollinis in diametro ca. 27 um.

TYPE: COSTA RICA: Puntarenas: Cordillera de Talamanca, 1-3 airline km S of the peak of Cerro Echandi; 9°00′ 30"- 9°01′ 30" N, 82°49′ W; elev. 2500-2800 m. Quercus forest with Chusquea understory. Shrub 1 - 1 1/2 m tall; florets white. 9 Mar. 1984. G. Davidse, I. D. Gómez, G. Herrera, C. R. Chacón, I. & A. Chacón 25504 (Holotype MO).

The species has a superficial resemblance to the poorly known Ageratina tonduzii (Klatt) K. & R. of Costa Rica but is thoroughly distinct by the sessile leaves and slender pedicels and involucral bracts of the inflorescence. The species is distinct from its relatives and unusual in the subgenus by the few flowers in its heads, the sparse hairs on its corolla lobes, the shortness of its carpopodium, and by the series of small glands on the inner surface of the style branches. The latter have thin-walled basal cells and thicker-walled terminal cells.

Ageratina (Neogreenella) **breedlovei** R. M. King and H. Robinson, sp. nov.

Plantae fruticosae ca. 1.3 m altae laxe ramosae. Caules brunnescentes teretes leniter striati glabri. Folia opposita, petiolis 4-9 mm longis; laminae ovato-lanceolatae 5.5-8.5 cm longae et 1.3-3.0 cm latae base obtusae vel subrotundatae margine dense minute serrulatae apice anguste acutae supra et subtus glabrae, nervis primariis subtus valde prominentibus, nervis secundariis pinnatis vix prominulis numerosis, nervulis translucentiter pellucido-reticulatis. Inflorescentiae in ramis terminales in nodis inferioribus foliiferae thyrsoideo-paniculatae, ramis corymbosis

glabris, ramulis ultimis 3-7 mm longis. Capitula ca. 13 mm alta et 3-4 mm lata; squamae involucri rubescentes ca. 10 eximbricatae longiores lineares ad 7.5 mm longae et 1 mm latae exteriores breviores 1-2 lanceolatae ca. 2 mm longae omnino apice denticulatae et breiter apiculatae extus multo minute glandulo-punctatae. Flores ca. 8 in capitulo; corollae pallidae distaliter lavandulae anguste infundibulares ca. 7.3 mm longae extus glabrae, tubis angustioribus ca. 2.5 mm longis, faucibus ca. 2.5 mm longis, lobis ca. 0.9 mm longis et 0.6 mm latis; filamenta in parte superiore ca. 0.5 mm longa; thecae ca. 2.4 mm longae; appendices antherarum 0.45 mm longae et 0.25 mm latae; rami stylorum non glanduliferi; achaenia ca. 2.5 mm longa superne setulifera inferne in costis scabridulae; carpopodia breviter rotundata ca. 0.1 mm alta et 0.25 mm lata, cellulis quadratis; setae pappi ca. 40 pallide rufescentes plerumque 5.0-5.5 mm longae et in apicem vix vel non latiores, setae interspersae 1-3 mm breviores et distaliter tenuiores. Grana pollinis in diametro ca. 27 um.

TYPE; MEXICO: Guerrero: 1-3 km northwest of Puerto El Gallo, ridge with forest of Pinus, Quercus, Ostrya and Carpinus, elev. 2500-2750 m. Shrub 4 feet tall, flowers lavender. 11 Nov. 1973. D. E. Breedlove 36067 (Holotype CAS).

The new species is distinquished by the pinnately veined, non-glanduliferous leaves with pellucid veins. Closest resemblance and possible closest relationship is to A. cronquistii K. & R., but the latter has more narrowly acuminate, glanduliferous leaves that are distinctly trinervate at the base of the blade. On the basis of the leaf and inflorecence shape the relationship to the pinnately veined A. ligustrina (DC.) K. & R. is much more remote.

Critonia breedlovei R. M. King & H. Robinson, sp. nov.

Plantae fruticosae 5 m altae laxe ramosae. Caules fulescentes hexagonales glabri. Folia opposita, petiolis 1.3-1.5 cm longis; laminae ovato-lanceolatae 13.0-19.2 cm longae et 4.5-5.2 cm latae base acutae margine serrulatae apice anguste leniter acuminatae supra et subtus glabrae interne distincte pellucide punctatae et lineatae, nervis secundariis pinnatis utrinque ca. 9. Inflorescentiae in ramis terminales pyramidaliter paniculatae, ramis sparse appresse puberulis. Capitula in fasciculis sessilia cylindrica ca. 8 mm alta et 3 mm lata; squamae involucri ca. 18 appresse subimbricatae ca. 5-seriatae valde inaequilongae 1.5-4.5 mm longae et 1.0-2.0 mm latae ovatae vel oblongae apice breviter obtusae vel rotun-

datae extus glabrae leniter ca. 4-striatae. Flores 5 in capitulo; corollae albae ca. 4 mm longae leniter infundibulares glabrae vel in faucibus persparse glanduliferae, tubis ca. 1.7 mm longis, faucibus ca. 1.7 mm longis, lobis ca. 0.45-0.50 mm longis et latis; filamenta in parte superiore ca. 0.18 mm longa; thecae ca. 1.2 mm longae; appendices antherarum ca. 0.25 mm longae et 0.23 mm latae; appendices stylorum distaliter leniter latiores; achaenia ca. 3.25 mm longa base angusta in costis inferne et superne minute scabridula inter costas glabra; setae pappi ca. 30 ca. 3.3 mm longae apice latiores, cellulis apicalibus brevibus densioribus. Grana pollinis in diametro ca. 20 um minute asperula.

TYPE: MEXICO: Chiapas: From Chicharras, alt. 3000-6000 ft. Feb. 6, 1896. E. W. Nelson 3753 (Holotype US). PARATYPES: MEXICO: Chiapas: Volcan Tacana, Chiquihuite. 2800 m. 27 Mar. 1939. E. Matuda 2822 (US); Siltepec, 3 Jan. 1937. E. Matuda 850 (US); Municipio of Jitotol, Pueblo Nuevo Solistahuacán, 5 miles south of Jitotol. Elev. 5600 feet. Slope with Pinus and Liquidamber along road. Shrub 15 feet tall, flowers white (CAS); Municipio of Villa Corzo, east base of Cerro Tres Picos near Cerro Bola along a logging road southwest of Colonia Agronomos Mexicanos. Steep slopes with Pinus, Quercus and Liquidamber and montane rain forest. Elev. 1500 m. Shrub 15 feet tall, flowers lavender. 9 Feb. 1972. D. E. Breedlove 24106 (CAS); Municipio of Motozintla de Mendoza, 45-50 km northeast of Huixtla along road to Motozintla, steep slopes with montane rain forest, Oecopetalum, Magnolia, Wimmeria, and Podocarpus. Elev. 1900 m. Shrub, flowers white. 17 Nov. 1971. D. E. Breedlove & A. R. Smith 22615 (CAS); Tree 20 feet tall. 28 Dec. 1972. D. E. Breedlove & R. F. Thorne 31003 (CAS); Southwest side of Cerro Mazotal, 11 km northwest of the junction of the road to Motozintla along the road to El Porvenir and Siltepec. Steep canyon, montane rain forest with Oecopetalum, Magnolia, Clethra, Pinus, Quercus and Symplocos. Elev. 2100 m. Shrub 15 feet tall, flowers white. 21 Nov. 1976. D. E. Breedlove 41607 (CAS).

The new species is one of two described here that have been placed under a broad concept of Critonia hospitalis (B. L. Robinson) K. & R., a species that appears to be restricted to near its type locality near Orizaba in Veracruz. Of the two new species, C. breedlovei is more like C. hospitalis in the form of its corollas but distinct in the short pubescence of its achenes. The species differs from the following by more hexagonal stems, the leaves with more narrowly

acuminate tips, and the more funnelform corollas.

Critonia tuxtlae R. M. King & H. Robinson, sp. nov.

Plantae fruticosae 3-5 m altae laxe ramosae. Caules fulvescentes teretes vel subhexagonales glabri. Folia opposita, petiolis 8-14 mm longis; laminae ellipticae vel elliptico-lanceolatae plerumque 8-12 cm longae et 3.0-4.5 cm latae base leniter breviter acuminatae margine undulato-mucronatae vel serrulatae apice leniter breviter acuminatae supra et subtus glabrae interne distincte pellucide punctatae et lineatae, nervis secundariis pinnatis utrinque 6-7. Inflorescentiae in ramis terminales pyramidaliter paniculatae, ramis glabris. Capitula in fasciculis sessilia cylindrica ca. 7 mm alta et 3 mm lata; squamae involucri 15-19 appresse subimbricatae ca. 5-seriatae valde inaequilongae 1-5 mm longae et 0.8-1.5 mm latae ovatae vel oblongae apice obtusae vel rotundatae extus glabrae leniter ca. 4-striatae. Flores 5 in capitulo; corollae albae ca. 3.5 mm longae breviter tubiformes glabrae, tubis ca. 1.5 mm longis, faucibus 1.2 mm longis, lobis ca. 0.8 mm longis et 0.5 mm latis; filamenta in parte superiore ca. 0.2 mm longa; thecae ca. 1.2 mm longae; appendices antherarum ca. 1.5 mm longae et 1.8 mm latae; appendices stylorum distaliter leniter latiores; achaenia ca. 3 mm longa base angusta in superficiis lateralibus et in costis longe setuliferis, setulis multicellularis; setae pappi ca. 28 plerumque ca. 3 mm longae et in apicibus aliquantum clavatae, setae ceterae breviores 1.0-1.5 mm longae et in apicibus tenuiores. Grana pollinis in diametro ca. 22 um minute asperula.

TYPE: MEXICO: Chiapas: 11 road miles north of Tuxtla Gutierrez, at Sumidero, overlooking the limestone canyon of the Rio Mescalapa. In second-growth forest in tropical oak-forest zone. Elev. about 4500 feet. Arborescent shrubs about 4 m tall, flowers white. Nov. 5, 1965. A. Cronquist & M. Sousa 10499 (Holotype US). PARATYPES: MEXICO: Chiapas: Cerro Mactumutza, Tuxtla Gutierrez. 1 Jan. 1949. I. K. Langman 3818 (US); Al N. de Tuxtla Gutierrez, en selva baja caducifolia, hacia 800 m. Arbusto & arbolito 3-4 m. 18 Nov. 1949. F. Miranda 5734 (US); Cerro Hueco, al S.E. de Tuxtla Gutierrez, en selva mediana subcaducifolia, hacia 850 m. Arbolito de unos 5 m. 4 Feb. 1951. F. Miranda 6877 (US).

Of the two new species, C. tuxtlae seems nearer to C. hospitalis in having dense pubescence on its achenes, but it differs by longer lobes of the corolla, the shorter thicker pappus setae, and the shorter appendage of the anther. The setulae of the

achenes are actually different in their detailed structure, being longer with a number of cells in each row. The new species is possibly nearer to C. nicaraguensis (B. L. Robinson) K. & R., but the latter has very slender corollas with narrow lobes, narrow achenes, and narrower pappus setae. The setulae are concentrated in the upper part of the achenes, and they are shorter with fewer cells.

Mikania platylepis D. Don ex R. M. King & H. Robinson, sp. nov.

Plantae volubilis vix lignosae. Caules virides vel pallide brunnescentes hexagonales dense minute hispiduli. Folia opposita, petiolis 10-15 mm longis; laminae late ellipticae plerumque 6.5-9.5 cm longae et 5.2-6.2 cm latae base generaliter late rotundatae et in medio breviter acuminatae margine integrae apice breviter late acuminatae supra minute scabridulae et sparse glandulo-punctatae subtus dense hispido-tomentellae et multo glandulo-punctatae, nervis secundariis utrinque 3-4 pinnatis patentibus arcuatis sensim ascendentibus et conniventibus camptodromis. Inflorescentiae in ramis secundariis et ramulis axillaribus terminales corymbosae, ramis dense breviter hispidulis, bracteis in nodis inferioribus foliiformibus in laminis 3.0-4.5 cm longis et 2.2-3.0 cm latis. Capitula in fasciculo ultimo triplices sessilia ca. 11 mm alta 4-5 mm lata; squamae subinvolucrales minute subulatae ca. 1.0-1.5 mm longae; squamae involucri 4 pallide-virides subaequales oblongae 6-7 mm longae et 3 mm latae apice late rotundatae vel subtruncatae extus ca. 10-striatae superne sensim dense breviter hispidulae. Flores 4 in capitulo; corollae albae? ca. 6 mm longae extus glandulo-punctatae et minute puberulae, tubis 1.0-1.3 mm longis, faucibus leniter infundibularibus ca. 2 mm longis, lobis 5 ca. 2.0-2.2 mm longis ca. 1 mm latis; filamenta in parte superiore ca. 0.2 mm longa inferne 0.22-0.25 mm lata; thecae ca. 2.5 mm longae; appendices antherarum ca. 0.8 mm longae et base ca. 0.3 mm latae; scapi stylorum supra basem sparse stipitato-glanduliferi; appendices stylorum dense hispidulae. Achaenia ca. 5 mm longa 5-costata sparse glandulo-punctata minute puberula superne densiores; setae pappi rufescentes ca. 55 plerumque 6.0-6.5 mm longae plerumque leniter clavatae, cellulis distalibus apice rotundatis. Grana pollinis in diametro ca. 23 um breviter spinulosa.

TYPE: PERU: without definite locality. Ruiz & Pavon s/n (Holotype and paratype BM).

The new species, even though collected by Ruiz

and Pavon almost 200 years ago and given a herbarium name by D. Don over 150 years ago, seems totally undescribed. It is not represented in either of the significant treatments of Mikania for Peru (B. L. Robinson 1922; Holmes & McDaniel 1982). There seems to be no reason not to validate the D. Don name, M. platylepis, which evidently refers to the distinctive broadly oblong involucral bracts. The new species has the triplets of sessile heads, pubescence on the style shaft, and dense, very long papillosity of the style appendages that are characteristic of the Mikania guaco relationship which seems particularly well-developed in Peru. The species seems closest to M. speciosa DC. on the basis of the corolla lobes being longer than the throat, but the latter has an even shorter throat, has narrower involucral bracts like most of the genus, and has slender rather than clavate tips on the reddish pappus bristles.

Neomirandea tenuipes R. M. King & H. Robinson, sp. nov.

Plantae fruticosae epiphyticae subcarnosae dense ramosae. Caules brunnescentes teretes dense verrucosi. Folia opposita subcarnosa glabra, petiolis subnullis ad 1 mm longis; laminae anguste rhomboideae plerumque 1.7-2.8 cm longae et 0.4-0.8 cm latae base cuneatae margine superne utrinque 3-4-serratae in parte anguste recurvatae apice breviter anguste acutae supra virides subtus pallidiores dense immerse glandulo-punctatae, nervis primariis laevibus, nervis secundariis indistinctis. Inflorescentiae in ramis terminales in axillis terminalibus fasciculate aggregatae, pedunculis tenuibus plerumque non ramosae 8-20 mm longae dense minute verrucose puberulae. Capitula ca. 8 mm alta et 5-6 mm lata; squamae involucri exteriores breviores 8-10 erecto-patentes vel patentes oblongae vel ovatae plerumque 2-4 mm longae et 1.0-1.5 mm latae apice obtusae extus prominentiter dense glandulo-punctatae; bracteae interiores 9-10 erectae lineares 6-7 mm longae et ca. 0.7-0.8 mm latae lavandulo-tinctae apice rotundatae subapice pauce glandulo-punctatae. Flores 9-10 in capitulo; corollae albae vel lavandulae anguste infundibulares 3.5-4.0 mm longae; tubis ca. 1.3 mm longis sparse glandulo-punctatae, faucibus ca. 1.6 mm longis, cellulis quadratis in parietibus non sinuosis, lobis ovatis ca. 0.5-0.6 mm longis et 0.5 mm latis extus superne perdense glandulo-punctatis inferne glabris; filamenta in parte superiore ca. 0.35 mm longa; thecae ca. 0.5 mm longae; appendices antherarum ca. 0.1 mm longae et 0.2 mm latae; achaenia ca. 2 mm longa subglabra apice

minime minute spiculifera base anguste stipitata; carpopodia minuta, cellulis 2-3-seriatis quadratis in parietibus non incrassatis; setae pappi ca. 46-48 plerumque 3.0-3.5 mm longae tenues apice leniter clavatae, setae paucae ceterae irregulariter breviores et apice tenuiores. Grana pollinis in diametro ca. 22 um breviter spinulosa.

TYPE: PANAMA: Border of Chiriqui and Bocas del Toro Prov.: Cerro Colorado; road to Bocas del Toro; end of mountain access road, just above face of mine; 1600-1700 m alt. Epiphytic small shrub; flowers pink in sun, white in shade. 14 August 1977. J. P. Folsom G. Small & R. Robbins 4768 (Holotype US; isotype MO).

The new species seems to be the most distinctive of those in the N. eximia (B.L.Robinson) K.& R. relationship. The branching is unusually dense and the leaves have the most marked serrations in the group. More distinctive, however, are the inflorescences with long, slender, mostly unbranched peduncles clustered at the ends of the leafy branches, and the well-developed involucral bracts with differentiated broad spreading outer members and erect narrow inner members. A further difference from N. eximia itself is the presence of glands in the tips of the corolla lobes. Neomirandea gracilis K.& R., also from Bocas del Toro, is a member of the relationship having remotely serrulate leaves and glands on the corolla lobes, but the latter is like N. eximia in the form of its inflorescence and its involucre, and it has the glands spread over the whole surface of the lobes and upper throat of its corollas.

The name of the species refers to the slender peduncles of the heads, but would also be appropriate for the stipitate bases of the achenes.

Neomirandea ternata R. M. King & H. Robinson, sp. nov.

Plantae fruticosae terrestriales? et epiphyticae subcarnosae. Caules teretes valde evanescentiter puberuli. Folia ternate verticillata glabra, petiolis 7-9 mm longis; laminae obovatae plerumque 4-10 cm longae et 1.5-4.2 cm latae margine superne minime denticulatae apice breviter acuminatae subtus dense glandulo-punctatae, nervis secundariis pinnatis utrinque 6-7. Inflorescentiae in ramis terminales late corymbosae ca. 25 cm longae et latae, ramis ultimis 4-10 mm longis puberulis. Capitula ca. 8 mm alta; squamae involucri 9-10 lineari-lanceolatae inaequales 2.5-4.5 mm longae et ca. 1 mm latae extus puberulae et sparse glandulo-punctatae. Flores 5 in capitulo; corollae lavandulae anguste infundibulares ca. 5.25 mm longae intus glabrae in lobis et superne in faucibus

puberulae, tubis 3 mm longis, faucibus 1.5 mm longis, cellulis late oblongis, parietibus non sinuosis, lobis ca. 0.6 mm longis et 0.5 mm latis extus 1-3-glandulo-punctatis; filamenta in parte superiore ca. 0.4 mm longa; thecae ca. 1.2 mm longae; appendices antherarum ca. 0.2 mm longae et 0.17 mm latae; achaenia 3.0-3.3 mm longa base et apice in costis scabrida superne puberula base carnose prolongata; carpopodia brevia, cellulis subquadratis 3-4-seriatis; setae pappi ca. 45 plerumque ca. 5 mm longae aliquot distincte breves 0.2-0.4 mm longae, longiores tenues minute scabridae apice vix latiores. Grana pollinis in diametro ca. 25 um breviter spinulosa.

TYPE: PANAMA: Chiriqui: Fortuna Dam area, along Quebrada Bonito to E of Road. Alt. 1100 m; 8°45′ N, 82°13′W. Terrestrial and epiphytic shrub; flowers lavender. 8 Feb. 1984. H. W. Churchill, G. de Nevers & H. Stockwell 4734 (Holotype US).

The new species seems to combine traits of Neomirandea croatii K. & R. of Panama and N. costaricensis K. & R. of the Cerro de la Muerte in Costa Rica. The corollas have extensive pubescence as in the former but the leaves are glabrous, the stems only puberulous, and the leaves are ternate. The ternate leaves are like the Costa Rican species, but the corollas are more pubescent, and the leaves are larger and broader. The short setae of the pappus are rather obvious and may prove distinctive.

Literature Cited

Holmes, W. C. and S. McDaniel. 1982. Flora of Peru. Family Compositae: Part III. Genus Mikania - Tribe Eupatorieae. Fieldiana: Botany n.s. 9: 1-56.

Robinson, B. L. 1920. Further diagnoses and notes on tropical American Eupatorieae. Contrib. Gray Herb. n.s. 61: 3-30.

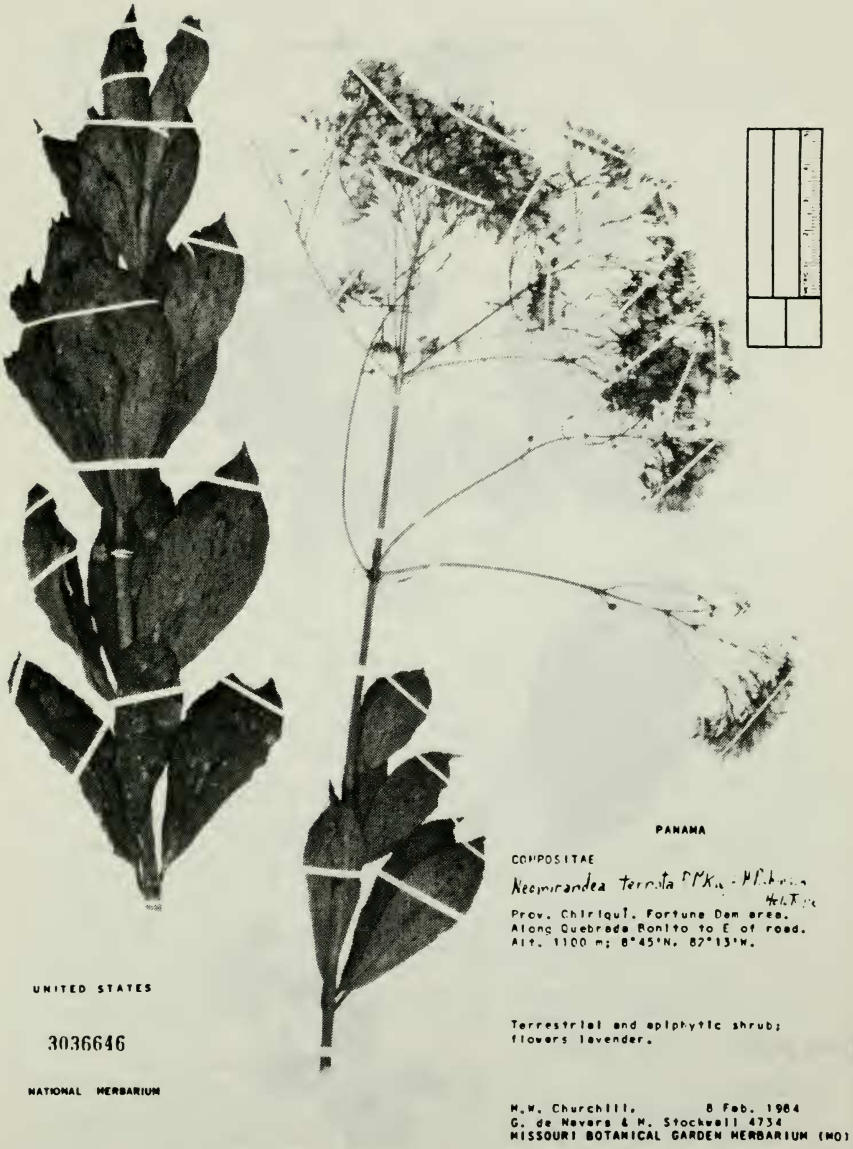
_____. 1922. The Mikanias of northern and western South America. Peru. Contrib. Gray Herb. n.s. 64: 72-95.

Ageratina contigua R. M. King and H. Robinson, Holotype, Missouri Botanical Garden, St. Louis. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.

Ageratina breedlovei R. M. King and H. Robinson, Holotype, California Academy of Sciences.

Critonia breedlovei R. M. King and H. Robinson, Holotype, United States National Herbarium.

Critonia tuxtlae R. M. King and H. Robinson, Holotype, United States National Herbarium.



Neomirandea ternata R. M. King and H. Robinson, Holotype, United States National Herbarium.

Mikania platylepis D. Don ex R. M. King and H. Robinson, Holotype, British Museum (Natural History).